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10/628,151	07/28/2003	Robin Dale Katzer	IDF 2393 4000-12700	4360

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EXAMINER

STACE, BRENT S

ART UNIT PAPER NUMBER

2161

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/628,151	Applicant(s) KATZER, ROBIN DALE	
	Examiner Brent S. Stace	Art Unit 2161	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Remarks*

1. This communication is responsive to the amendment filed May 10<sup>th</sup>, 2006. Claims 1-29 are pending. In the amendment filed May 10<sup>th</sup>, 2006, Claims 1 and 10-29 were amended, and Claims 1, 14, 20, and 24 are independent Claims. The examiner acknowledges that no new matter was introduced and the claims are supported by the specification. This action is made FINAL.

### *Response to Arguments*

2. Applicant's arguments dated May 10<sup>th</sup>, 2006 have been fully considered but they are not persuasive for the reasoning recited below.
3. It should be noted that although it may appear that a new grounds of rejection has been applied, new grounds of rejection has not applied since some claims were ~~merely~~ <sup>merely</sup>renumbered.
4. As to the applicant's arguments with respect to Claims 1-13 and 20-29 for the amended claims allegedly being directed toward statutory subject matter under 35 USC § 101, the examiner respectfully disagrees for the reasoning given in the 35 USC § 101 rejection section below.
5. As to the applicant's arguments with respect to exemplary Claim 1 (and Claims 14, 20, and 24) for the prior art(s) allegedly not teaching or suggesting "an engine operable to monitor the in-memory database system and apply the rule to the cached

data outside of the application,” the examiner respectfully disagrees. First, the engine, as mapped in TimesTen, is TimesTen’s data manager. The amended claim is ambiguous in the fact that the amended phrase “outside of the application” can apply to the “engine” being outside of the application or the “cached data” being outside of the application. Clarification is requested since the arguments posed do not seem to clarify the intended interpretation. In either interpretation, though, the claimed limitations are still taught by the reference.

In the interpretation where the engine is outside of the application, and considering the TimesTen reference in its entirety, TimesTen caches table fragments in the application tier and allows for, essentially, two way synchronization in the cache by using the data manager. This data manager runs on the application server separate from the applications [TimesTen, page 589, paragraphs above and below section 3 heading]. The applicant dually notes this fact where the applicant says in the arguments on page 12 that TimesTen (and it’s data manager) is a COTS in-memory database management system. Seeing that the engine/data manager in TimesTen is separate from the application, this meets the claimed limitation where the interpretation of the claim is that the engine is outside of the application.

In the interpretation where the cached data is outside of the application, since TimesTen and it’s data manager have been established above as being outside of the application, then it is also true that TimesTen (and it’s data manager) occupy a separate (and outside) memory location in the application tier/server(s). Since the application tier/server(s) is where the cached tables or subsets of tables reside [TimesTen, page

589 col. 2, first FULL paragraph] and TimesTen (and it's data manager) occupy a separate (and outside) memory location in the application tier/server(s), the cached data is also outside of the application. TimesTen maps to the claimed limitations as claimed.

6. In response to Applicant's arguments with respect to Claims 12 and 27 for not being obvious with no substantial arguments of why the posed combination is not obvious, the examiner respectfully disagrees for the reasons stated below in the 35 USC § 103 rejection.

7. The other claims argued merely because of a dependency on a previously argued claim(s) in the arguments presented to the examiner, filed May 10<sup>th</sup>, 2006, are moot in view of the examiner's interpretation of the claims and art and are still considered rejected based on their respective rejections from the first Office action (recited again below).

### ***Specification***

8. In light of the applicant's respective arguments or respective amendments, some previous specification objections to the specification have been withdrawn.

9. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

10. In light of the applicant's respective arguments or respective amendments, all previous claim objections to the claims have been withdrawn, however, new claim objections are warranted below.

11. Claims 1-13 and 20-29 are objected to because of the following informality:

a. Exemplary Claim 1 recites poor sentence structure with the citing of "A cache management system operable on one or computer systems" in lines 1-2.

Claims 20 and 24 share this similar objection and this objection propagates downward through dependent Claims 2-13, 21-23, and 25-29.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 1-13 and 20-29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

14. Claims 1-13 and 20-29 lack a useful, concrete, and tangible result because the system appears to be directed at software per se, which is functional descriptive material per se that is non-statutory subject matter. The amended claims further suggest that the systems in the claims are directed at software per se since software is operable on one or [more] computer systems.

15. To expedite a complete examination of the instant application, the Claims rejected under 35 U.S.C. 101 above are further rejected as set forth below in

anticipation of applicant amending these Claims to place them within the four statutory categories of invention.

***Claim Rejections - 35 USC § 112***

16. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

17. Claims 1, 14, 20, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

18. The amended claims are unclear in the fact that the amended phrase "outside of the application" can apply to the "engine" being outside of the application or the "cached data" being outside of the application. Clarification is requested since the arguments posed do not appear to clarify the intended claim interpretation.

***Response to Amendment***

***Claim Rejections - 35 USC § 102***

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

20. Claims 1-11, 13-26, 28, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by "Mid-Tier Caching: The TimesTen Approach" (TimesTen).

**Claim 1** can be mapped to TimesTen as follows: "A cache management system operable on one or computer systems, [TimesTen, p. 588, last paragraph], comprising:

- an in-memory database system for managing cached data; [TimesTen, p. 589, paragraphs above and below section header 3]
- an application utilizing data and having a rule related to caching the data; [TimesTen, p. 591, section 4.3]
- a wrapper to receive the data from the application and provide at least a portion of the data and a component of the rule to the in-memory database system; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3] and
- an engine operable to monitor the in-memory database system and apply the rule to the cached data outside of the application" [TimesTen, p. 591-592, section 4.3].

**Claim 2** can be mapped to TimesTen as follows: "The cache management system of Claim 1, wherein the component of the rule is further defined as a first component and a second component of the rule" [TimesTen, p. 591-592, section 4.3].

**Claim 3** can be mapped to TimesTen as follows: "The cache management system of Claim 1, wherein the rule is further defined as instructions for cache management of the data" [TimesTen, p. 591-592, section 4.3].



**Claim 4** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the data is application data and wherein the rule for cache management of the data is related to the application” [TimesTen, p. 591-592, section 4.3 with TimesTen, p. 590, paragraph under section header 4].

**Claim 5** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the wrapper receives at least a portion of the data from the application and the wrapper provides a part of the at least a portion of the data to the in-memory database system” [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3].

**Claim 6** can be mapped to TimesTen as follows: “The cache management system of Claim 1, further comprising a plug-in operable to communicate with the in-memory database system to receive the data and the component of the rule from the wrapper and communicate the data and information related to the rule to the in-memory database system” [TimesTen, page 589, paragraph below section header 3, with TimesTen, page 590, paragraph under section header 4.1, TimesTen, page 591, paragraph above section header 4.3].

**Claim 7** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the engine is operable to obtain the component of the rule from the in-memory database and to obtain the instruction for cache management of the data related to the component of the rule and further operable to execute the instructions to apply the rule to the data” [TimesTen, p. 591-592, section 4.3].

**Claim 8** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the rule is defined as an asynchronous rule” [TimesTen, p. 591-592, section 4.3].

**Claim 9** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the rule is defined as a synchronous rule” [TimesTen, p. 591-592, section 4.3].

**Claim 10** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the rule includes a refresh data instruction whereby the engine is operable to obtain current data from a database” [TimesTen, p. 591-592, section 4.3].

**Claim 11** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the rule includes a tenure data instruction whereby the engine is operable to release the data after a time period” [TimesTen, p. 591, section 4.2].

**Claim 13** can be mapped to TimesTen as follows: “The cache management system of Claim 1, wherein the component of the rule is further defined as a rule type” [TimesTen, p. 591-592, section 4.2-4.3].

**Claim 14** can be mapped to TimesTen as follows: “A system for managing cached data, [TimesTen, p. 588, last paragraph] comprising:

- a first application server; [TimesTen, p. 589, first paragraph and figure under section header 2]
- an application operable on the first application server, [TimesTen, p. 588, first paragraph] the application utilizing data and having a rule related to a cache management of the data; [TimesTen, p. 591-592, section 4.3]

- a second application server; [TimesTen, p. 589, first paragraph and figure under section header 2]
- an in-memory database management system operable on the second application server to receive the data; [TimesTen, pgs. 589-590, second paragraph under section header 3]
- a wrapper in communication with the application to receive a component of the rule from the application and provide the component of the rule to the in-memory database system; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, pgs. 591-592, section 4.3] and
- an engine operable to monitor the in-memory database system and apply the rule to the cached data outside of the application” [TimesTen, pgs. 591-592, section 4.3].

**Claim 15** can be mapped to TimesTen as follows: “The system of Claim 14, wherein the engine is operable on the first application server” [TimesTen, p. 589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3].

**Claim 16** can be mapped to TimesTen as follows: “The system of Claim 14, wherein the wrapper is operable on the first application server” [TimesTen, p. 589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3].

**Claim 17** can be mapped to TimesTen as follows: “The system of Claim 14, wherein the wrapper and the engine are operable on the first application server” [TimesTen, p.

589, section 2 with TimesTen, pgs. 589-590, second paragraph under section header 3].

**Claim 18** can be mapped to TimesTen as follows: “The system of Claim 14, wherein the engine is operable on the second application server” [TimesTen, pgs. 589-590, second paragraph under section header 3 with TimesTen, pgs. 591-592, section 4.3].

**Claim 19** can be mapped to TimesTen as follows: “The system of Claim 14, further comprising a third application server and wherein the engine is operable on the third application server” [TimesTen, p. 589, first paragraph and figure under section header 2 with TimesTen, pgs. 589-590, second paragraph under section header 3 with TimesTen, pgs. 591-592, section 4.3].

**Claim 20** can be mapped to TimesTen as follows: “A method of managing cached data operable on one or computer systems, [TimesTen, p. 588, last paragraph] comprising:

- obtaining data and a component of a rule related to the data from an application; [TimesTen, p. 591, section 4.3]
- wrapping the data and the component of the rule; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3]
- providing the wrapped data and component of the rule to an in-memory database server; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3]

- monitoring the in-memory database server; [TimesTen, p. 591-592, section 4.3]  
and
- applying the rule to the data based on the rule component outside of the  
application” [TimesTen, p. 591-592, section 4.3].

**Claim 21** can be mapped to TimesTen as follows: “The method of Claim 20, wherein the data is further defined as application data” [TimesTen, p. 591-592, section 4.3 with TimesTen, p. 590, paragraph under section header 4].

**Claim 22** can be mapped to TimesTen as follows: “The method of Claim 20, wherein the rule is defined as an instruction related to a cache management of the data” [TimesTen, p. 591-592, section 4.3 with TimesTen, p. 590, paragraph under section header 4].

**Claim 23** can be mapped to TimesTen as follows: “The method of Claim 20, wherein the component of the rule is further defined as a rule type related to the instruction” [TimesTen, p. 591-592, section 4.2-4.3].

**Claim 24** can be mapped to TimesTen as follows: “A cache management system operable on one or computer systems, [TimesTen, p. 588, last paragraph] comprising:

- an application utilizing data and having a rule related to caching the data;  
[TimesTen, p. 591, section 4.3]
- a wrapper in communication with the application to receive at least a component of the rule; [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3] and

- an engine operable to receive at least the component of the rule from the wrapper and apply the rule to cached data outside of the application” [TimesTen, p. 591-592, section 4.3].

**Claim 25** can be mapped to TimesTen as follows: “The cache management system of Claim 24, wherein the data is a refresh data request” [TimesTen, p. 591, section 4.3].

**Claim 26** can be mapped to TimesTen as follows: “The cache management system of Claim 24, wherein the rule is an application specific cache data rule” [TimesTen, p. 591-592, section 4.2-4.3].

**Claim 28** can be mapped to TimesTen as follows: “The cache management system of Claim 27, wherein the wrapper is further operable to provide at least a portion of the data from the application and a component of the rule to the in-memory database” [TimesTen, p. 589, paragraph under section header 3 with TimesTen, p. 590, paragraph under section header 4 with TimesTen, p. 591-592, section 4.3].

**Claim 29** can be mapped to TimesTen as follows: “The cache management system of Claim 28, wherein the engine is further operable to poll the in-memory database and apply the rule related to the rule event to the data” [TimesTen, p. 591-592, section 4.2-4.3].

### ***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over “Mid-Tier Caching: The TimesTen Approach” (TimesTen).

For **Claim 12**, TimesTen teaches: “The cache management system of Claim 1, wherein the rule includes a persist data instruction whereby the engine is operable to release the data after a time period” [TimesTen, p. 591, section 4.2].

TimesTen discloses the above limitations but does not expressly teach in the same embodiment:

- “...unless the data is requested before the expiration of the time period.”

With respect to Claim 12, TimesTen teaches in a different embodiment:

- “...unless the data is requested before the expiration of the time period”  
[TimesTen, p. 591, section 4.2].

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the two embodiments of TimesTen because both embodiments are directed towards caching data.

TimesTen discloses an in-memory database data manager with mid-tier caching comprising caching out data based on duration time in the cache, however TimesTen does not expressly disclose in the same embodiment LRU caching. TimesTen discloses an in-memory database data manager with mid-tier caching comprising caching out data based on duration time in the cache comprising an LRU cache replacement scheme based on last time of access.

It would have been obvious to one of ordinary skill in the art at the time of invention to take the LRU cache replacement scheme from one embodiment of TimesTen and install it into the cache aging duration replacement scheme of TimesTen, thereby offering the obvious advantage of not inappropriately replacing or caching-out data from the cache when it may be used again later or shortly later, thereby increasing the speed of the system by relying on cached data.

23. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over “Mid-Tier Caching: The TimesTen Approach” (TimesTen) in view of U.S. Patent No. 6,901,383 (Ricketts et al.).

For Claim 27, TimesTen teaches: “The cache management system of Claim 24, further comprising an in-memory database for managing cached data, [TimesTen, p. 589, paragraphs above and below section header 3] the in-memory database further includes a storage portion for storing the data utilized by the application [TimesTen, p. 591, paragraph under section header 4.3]... operable to maintain a rule event related to the rule for caching data, the rule event pointing to a location in the storage portion of the in-memory database where the data related thereto is stored” [TimesTen, p. 591-592, section 4.2-4.3 with TimesTen, p. 591, paragraph above section header 4.2].

TimesTen discloses the above limitations but does not expressly teach: “...and a table.”

With respect to Claim 27, an analogous art, Ricketts, teaches: “...and a table” [Ricketts, col. 12, lines 46-59 with Fig. 37A].



It would have been obvious to one of ordinary skill in the art at the time of invention to combine Ricketts with TimesTen because both inventions are directed towards databases.

Ricketts's invention would have been expected to successfully work well with TimesTen's invention because both inventions use databases. TimesTen discloses an in-memory database data manager with mid-tier caching comprising maintaining rules for cache management, however TimesTen does not expressly disclose the use of a rules table for maintaining these rules. Ricketts discloses stock purchase indices comprising a table of filters (rules).

It would have been obvious to one of ordinary skill in the art at the time of invention to take the table from Ricketts and install it into the system of TimesTen, thereby offering the obvious advantage of TimesTen using its own data structures (tables in memory) to access the rules for caching fast, thereby increasing the speed of the combined invention.

**24. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Conclusion**


25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brent S. Stace whose telephone number is 571-272-8372 and fax number is 571-273-8372. The examiner can normally be reached on M-F 9am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A. Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brent Stace

*cy*

  
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